

Statewide Standard Treatment Protocols

***Paramedic Standing
Orders, Guidelines, and
Policies 2008***



Effective: November 1, 2008

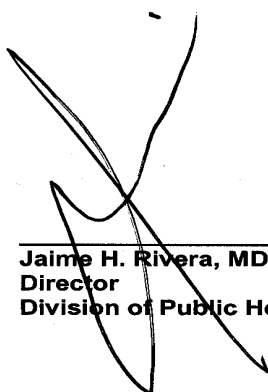
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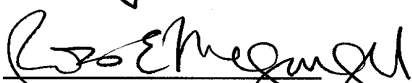
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**State of Delaware
Department of Health and Social Services
Division of Public Health
Office of Emergency Medical Services**

**Statewide Standard Treatment Protocols,
Guidelines, Policies,
and
Paramedic Standing Orders**

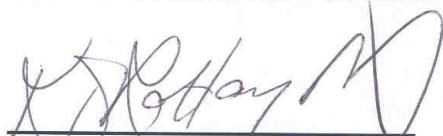


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Protocols Amended - October 19, 2009



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INTRODUCTION

The standing orders of the Statewide Standard Treatment Protocol have been developed for use by paramedics while functioning in the Delaware Paramedic Services System. These Standing Orders replace the previous set and are effective on November 1, 2008. The Standing Orders are specific and should not be open to alteration. However, while many of the common, frequently encountered medical emergencies have been addressed by specific standing order, it is recognized that not all patient presentations are clear-cut, nor will all patients benefit from "recipe" treatment approaches. Standing orders do not replace the need for sound clinical judgment or the need to contact medical control as soon as possible.

Standing orders are not intended to provide definitive treatment, but are intended to stabilize the patient prior to transport to the hospital for definitive treatment. Deviation from standing orders may be undertaken only by direct order from an approved medical control physician serving as Medical Command within an approved facility.

The intent of these orders is two-fold: 1) promotion of statewide standardization of prehospital advanced life support services, and 2) provision of guidelines under which paramedics may initiate life-saving treatments prior to establishing contact with medical control.

The ultimate goal of the Delaware Paramedic System is to deliver viable patients to the hospital, thereby creating a positive impact on health care in Delaware.

PARAMETERS OF PARAMEDIC PRACTICE

Paramedics are not authorized, in the State of Delaware, to function as independent providers of advanced life support services.

Paramedics function as physician extenders and, as such, participate in the practice of medicine. Paramedics may only perform advanced life support procedures when functioning as members of an on-duty Advanced Life Support (ALS) unit. Such a response unit must be from a state approved paramedic service whose paramedics are functioning under the license of the State Emergency Medical Service's Medical Director.

The prehospital provision of ALS services by a paramedic in any other situation constitutes the unlawful practice of medicine.

These situations include but are not limited to: performing ALS skills while serving on Basic Life Support (BLS) units, carrying ALS equipment in personal vehicles for the purpose of responding to medical emergencies, and offering or providing paramedic services in settings other than those described above.

PARAMEDIC SCOPE OF PRACTICE

Delaware paramedics serve as physician extenders in providing prehospital advanced life support within the state, and, as specified in reciprocity agreements, in surrounding states.

The underlying objective of all paramedic activities is the rapid treatment, stabilization, and transport of the sick and injured to appropriate receiving facilities. The paramedic is authorized to provide all "first responder" and basic life support interventions in addition to the advanced life support procedures specified by this statewide standard treatment protocol, as approved by the Board of Medical Practice. Unless an imminent threat to life or limb necessitates immediate treatment, it is in the patient's best interest for the paramedic to obtain the chief complaint, history of present illness, pertinent past medical history, list of medications, and conduct a directed physical examination. Information gathered during the assessment is then used to guide treatment.

Paramedics respond to all calls to which they are dispatched, whether the nature of the call is medical or trauma. Paramedics evaluate and treat prehospital patients utilizing guidelines specified by these protocols. Communication is to be established with medical control as soon as possible, even if treatment of the patient does not require authorization by medical control. Treatments that do require authorization by medical control shall not be carried out on the paramedic's own initiative except under exceptional circumstances where communication with medical control is not immediately obtainable and, in the opinion of the paramedic, the patient's life may be jeopardized by further delay. At no time shall paramedics perform procedures beyond their scope of training or practice. A list of procedures ordinarily accomplished by protocol and verbal order of medical control follows and clearly defines the scope of paramedic practice. All patients evaluated by the paramedics are to be transported to the hospital. The only exceptions to this rule occur when patient care is released to another EMS agency or when the patient refuses service. In some instances, medical control must be contacted for authorization per standing order.

In cases of anticipated, actual or pending public health need paramedics may be authorized by the Director of Public Health and the State EMS Medical Director to give immunizations and vaccinations against infectious/communicable diseases. Specific immunization standing orders, administrative procedures and modifications to protocols must be authorized and signed by the Director of Public Health the State EMS Director and the State EMS Medical Director. This standing order must meet or exceed the policy standards and guidelines established by the National Vaccine Advisory Committee of the Centers for Disease Control (CDC). **Participation in the vaccination program by Delaware Paramedic Agencies is elective.** _____

Use of the standing orders within the Statewide Standard Treatment Protocol is straightforward. When ALS providers functioning as Delaware paramedics encounter a patient meeting the proper criteria as described in the order, treatment should be initiated. The orders are designed to permit paramedics to render emergent treatment of the sick and injured. Treatment should proceed through the protocol until the patient's condition changes or stabilizes. If the change in patient condition meets the criteria for a different standing order, treatment should be altered accordingly. For example, a victim in cardiac arrest who displays a variety of dysrhythmias would require paramedics to follow different protocols depending on the rhythm. Once the patient is stabilized, or the orders have been completed, medical control must be contacted. Medical control may of course be contacted at any point during patient care, preferably early in the course of therapy, but must be contacted in all cases, preferably before transportation is initiated, unless the trauma protocol is in use.

MINIMUM SKILLS AND PROCEDURES

The following are skills and procedures that all paramedics must demonstrate proficiency in for initial certification and must maintain proficiency in for recertification. Procedures that are allowed only with approval by medical control are marked by an asterisk (*). All equipment/devices carried by or utilized by ALS agencies require the written approval of the State EMS Medical Director.

1. Patient assessment (primary and secondary surveys)
2. Obtaining vital signs
3. Airway control (manual)
4. Use of airway adjuncts (nasopharyngeal and oropharyngeal airways)
5. Spine immobilization/stabilization
6. Cardio-pulmonary resuscitation
7. Bleeding control
8. Splinting of fractures and dislocations
9. Endotracheal intubation (oral and nasal)
10. Obtaining IV access (includes use of saline locks and accessing central lines)
11. Medication, vaccine and immunization administration (parenteral, intraosseous, endotracheal, intranasal, nebulized, oral, sublingual, and transdermal) _____
12. Calculation of drug dosages
13. Defibrillation/cardioversion (includes use of SAED)
14. Dysrhythmia recognition and treatment
15. External cardiac pacing
16. Use of suction equipment
17. Application of oxygen delivery devices (includes use of CPAP)
18. Use of bag-valve-mask device
19. Application of cardiac monitors
20. Venipuncture to obtain blood samples
21. Vaginal delivery
22. Eye irrigation
23. External jugular cannulation
24. Use of Magill forceps to remove foreign body from the obstructed airway
25. Pulse oximetry and CO-oximetry
26. Capnography (nasal and endotracheal)
27. 12 lead electrocardiogram (ECG)
28. Blood glucose determination
29. Valsalva maneuvers (to control supraventricular tachycardia)
30. Intraosseous access for fluid/medication administration
31. Use of approved rescue airway device
32. Gastric tubes
33. Surgical/Needle cricothyrotomy
34. Needle chest decompression
35. *Presumptive diagnosis of death*
36. Use of pelvic compression devices
37. Use of approved ventilator device
38. Use of tourniquets and approved hemostatic agents
39. Use of approved mechanical chest compression device

PARAMEDIC RADIO/TELEPHONE REPORTS GUIDELINES

The paramedic report to medical control should be brief and concise. The goal is to provide enough vital information to medical control so that they may provide informed direction for the patient's continued care and plan for the patient's disposition. Reports generally should not exceed thirty (30) seconds in duration in order to provide economical use of time by the paramedic, the medical control physician, and nursing personnel.

Essential information for each report includes:

- Paramedic unit number.
- Estimated time of arrival.
- Priority.
- Patient age.
- Patient sex.
- Chief complaint and related past medical history (i.e., patient with chest pain, history of MI and CABG or patient with altered mental status and history of insulin dependent diabetes).
- Vital signs.
- Significant physical findings (i.e., patient with shortness of breath found to have wheezing and to be hot to the touch, or the patient complaining of leg pain who has deformity of the mid thigh without distal pulses).
- Care rendered.
- Response to care.
- Orders requested.
- Run case number is required for DOPA

The above information should be more than adequate for most paramedic runs. When additional information is felt to be important for patient care or disposition, the medical control physician is well within their jurisdiction to request more information.

PARAMEDIC DOCUMENTATION RECORDS POLICY

At the time of patient delivery to an approved healthcare facility, the paramedic must give a verbal report to a physician or nurse at the patient's bedside and leave identified copies of all pertinent ECGs, rhythm strips, and printed patient trend data before leaving the receiving facility.

Patient care is not finished until a patient care report (PCR) is completed. Paramedics must complete, without exception, a written/computer report on each patient contact. The PCR should be completed before the paramedic leaves the facility to which the patient was transported. An exception to this policy is the need to provide care to another patient when other paramedic units are not readily available. Should the paramedic unit be dispatched prior to completing the PCR, every attempt should be made to complete the report as soon as possible. All PCRs should be completed and submitted to the receiving facility within four (4) hours of patient delivery. **Without exception, a PCR must be completed and submitted to the receiving facility before a paramedic goes off duty.**

The EDIN Quality Assurance Audit Screen will be set to flag all charts printed more than four hours after patient arrival at the receiving facility.

ADULT GENERAL PATIENT CARE

INDICATIONS: Any adult patient requiring pre-hospital medical evaluation by a prehospital healthcare provider in the State of Delaware.

People who have no complaint or signs of illness or injury, no acute altered mental status, and no acute mental illness are not considered to be patients.

The Adult General Patient Care protocol will be followed in conjunction with all other applicable protocols.

- Respond using lights and sirens in accordance with Priority Medical Dispatch® (PMD®) protocols currently approved by Delaware EMS Medical Directors.
- Perform scene survey. *Delaware EMS Medical Directors recommend that all EMS crews carry “room” carbon monoxide detectors with an audible alert on their first-in bag for provider and patient protection.*
- Observe universal precautions.
 - Follow your agency’s infection control policy.
 - Delaware EMS Medical Directors recommend wearing masks when caring for patients with active coughing. Consider masking the patient pending respiratory status.
- Consider the need for additional resources.
- Determine responsiveness using AVPU.
- Evaluate Airway, Breathing, Circulation, and Disability, Exposing the patient as necessary.
- Secure a patent airway appropriately.
- Manage cervical spine appropriately.
- Treat life-threatening conditions as necessary per specific treatment protocols.
- **Contact medical control** for consideration of a needle chest decompression.
- Assess body systems as appropriate.
- Monitor patient via the use of pulse oximetry and/or capnography, as appropriate.
- Administer oxygen as appropriate (maintain an SaO₂ of at least 92%).
- Obtain medical history (HPI, PMH, allergies, and medications).
- Evaluate blood pressure, pulses, respiratory rate, and tactile temperature. Reassess with a frequency indicated by patient condition.
- Monitor blood glucose levels as appropriate.
- Monitor cardiac rhythm and/or 12 lead ECG as appropriate.
- Assign treatment priority and make transport decision.
- Establish intravenous access with normal saline infused as appropriate.

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- Consider intraosseous access if IV access cannot readily be obtained for Priority 1 patients in extremis that are in need of medication or fluid resuscitation.
 - Administer 20 – 40 mg lidocaine IO over 1 minute in the conscious patient if not contraindicated
 - Administer 10 ml NSS rapid IO push
 - All IV medications can be administered IO
- Consider the insertion of an orogastric tube after the patient is successfully intubated.
- Consider the administration of 4 mg Zofran (Ondasteron®) ODT, IV or IM for nausea and vomiting.
- **Contact medical control** for consideration of administration of up to 5 mg haloperidol (Haldol®) IV or IM for sedation.
- Contact medical control as soon as possible.
- Contact medical control for BLS release if appropriate.
- Secure patient in ambulance using appropriate equipment per ambulance design and agency standard operating procedures.
- Transport patient to an appropriate medical facility via appropriate mode of transportation without delay. Transport should be made safely and in a manner as to prevent further injury through the appropriate use of lights and sirens or no lights and sirens. **The highest medically trained practitioner engaged in patient care will determine the medically appropriate mode of transportation based upon the patient's presenting medical condition. This practitioner will communicate with the transporting EMS vehicle's operator and advise him/her as to the transport mode to be utilized.**
- Responsibility of care does not end until transfer of care of the patient to an appropriately trained health care provider is completed.
- Document relevant findings and treatments.

Priority I Patient suffering from an immediate life or limb threatening injury or illness.

It is the consensus of the EMS medical directors that during transport to the hospital lights and sirens are not medically indicated for many Priority I patients.

Priority II Patients suffering from an injury or illness that if left untreated could potentially threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority II patients.

Priority III Patient suffering from an injury or illness that requires medical attention but does not threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority III patients.

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The approved pharmacology manual should be used for medication reference.

Zofran (Ondasteron[®]) ODT means oral dissolving tablet

CO-oximetry may be performed as an option by agencies carrying CO monitoring equipment.

It should be noted that the General Patient Care protocol above is a guideline to be followed in as much as it aids in providing appropriate and timely medical care. The ALS provider may change the order or omit steps listed above as dictated by sound judgment of the care provider and/or presentation of the patient(s).

The following information should be passed on in either verbal or written form at the time of patient transfer: HPI, PMH, allergies, medications, vital signs, SaO₂, EtCO₂, cardiac rhythm, prehospital treatments, and patient's response to those treatments.

ACUTE RESPIRATORY DISTRESS

INDICATIONS: *Acute exacerbation of asthma, emphysema, and reactive airway disease; cough, shortness of breath, air hunger, wheezing, diminished breath sounds, retractions, and tachypnea.*

Contact medical control prior to medication administration if the patient's heart rate is greater than 150 beats per minute (BPM).

- Consider capnography.
- Consider CPAP for an alert patient who is able to maintain a patent airway but is, or continues to be, in moderate to severe respiratory distress.
- If the patient who is short of breath has a history of asthma, emphysema, or is actively wheezing, administer up to 5 mg of albuterol via nebulized aerosol.
- Consider the administration of 0.5 mg nebulized ipratropium bromide (Atrovent[®]) with albuterol.
- If wheezing continues after first albuterol treatment is completed, you may administer a second dose of up to 5 mg of albuterol via nebulized aerosol if the patient's heart rate remains less than 150 BPM.
- Consider the administration of prednisone 60 mg PO for mild to moderate respiratory distress or 125 mg methylprednisolone (Solu-Medrol[®]) IV for severe respiratory distress secondary to asthma or COPD. *Hold steroids for suspected pneumonia, CHF or "metabolic hyperventilation" (DKA, sepsis, etc.).*
- **Contact medical control** for consideration of administration of 1-2 g magnesium sulfate IV over 10 minutes for continuing severe respiratory distress secondary to asthma or COPD.

For patients prescribed and taking levalbuterol (Xopenex[®]) via nebulizer, the substitution of the patient's own medication in place of albuterol is acceptable.

Usual Xopenex doses: 0.31 mg/3 ml; 0.63 mg/3 ml; 1.25 mg/3 ml

PULMONARY EDEMA DUE TO CONGESTIVE HEART FAILURE

INDICATIONS: *Shortness of breath, air hunger, tachypnea, tachycardia, elevated blood pressure, rales, neck vein distention, and diaphoresis.*

- Consider capnography.
- Consider CPAP for an alert patient who is able to maintain a patent airway but is, or continues to be, in moderate to severe respiratory distress.
- Administer 0.4 mg nitroglycerin (NTG) SL. Repeat NTG at a higher dose of 0.8 mg NTG every 3-5 minutes. If systolic blood pressure (SBP) is less than 120 mmHg, discontinue NTG administration until SBP recovers to greater than 120 mmHg. **IV must be established prior to NTG administration for patients not currently prescribed and taking NTG.**
- Apply 1" nitroglycerin paste if systolic blood pressure is greater than 120 mmHg.
- If the patient is on furosemide (Lasix®), administer furosemide IV in a dose equivalent to the patient's **total** daily dose. Give furosemide doses **up to 120 mg**. Withhold if systolic blood pressure is less than 120 mmHg.
 - **Contact medical control to administer doses in excess of 120 mg IV or if the patient is not on furosemide**
 - If the daily dose is unknown, administer 40 mg furosemide IV
- Perform and interpret 12 lead ECG.

Assessment and management of airway and breathing precedes the performance of a 12 lead ECG.

Withhold nitrates and contact medical control if the patient relates taking sildenafil (Viagra®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®) within the last 48 hours.

ALTERED MENTAL STATUS

INDICATIONS: *Incomprehensible speech, inappropriate verbal responses, inability to follow verbal commands, decreased responsiveness, or unresponsiveness.*

- Obtain venous blood samples and determine serum blood glucose by glucometer.
- If blood sugar is less than 80 mg/dl, administer up to 25 g of dextrose IV.
- If blood sugar is less than 80 mg/dl by glucometer and intravenous access is not obtainable, administer 1 mg glucagon IM, IN.
- Consider the administration of 0.4 - 2 mg naloxone (Narcan[®]) IV, IN, or IM to provide for a patent, self-maintained airway and adequate respirations.

Contact medical control for consideration of sodium bicarbonate for tricyclic antidepressant overdose, glucagon for beta blocker overdose, and calcium chloride for calcium channel blocker overdose.

Consider nasal prong EtCO₂ monitoring along with pulse oximetry to ensure adequate oxygenation and ventilation.

If a glucometer fails or is not immediately available, proceed with appropriate dosage of D50 or Glucagon.

SUSPECTED STROKE

INDICATIONS: *Abnormality in Cincinnati Stroke Scale (positive pronator drift, speech deficit, facial droop), Altered mental status, seizure, headache, parasthesia, and hemiparesis in the absence of trauma, weakness, ataxia, visual disturbances, nausea, vomiting, general malaise, abnormal pupillary function, or other symptoms of suspected cerebral ischemia or hemorrhage.*

- Administer oxygen via nasal cannula at a quantity sufficient to maintain the oxygen saturation equal to or greater than 95%.
- Place patient in a semi to high-fowler's position if possible.
- If blood sugar is less than 80 mg/dl, administer up to 25 g of dextrose IV.
- Administer 1mg Glucagon IM, IN if the blood sugar is less than 80 mg/dl and an IV cannot be established.
- Transport to the nearest appropriate CT-capable medical facility without delay. Early notification of "Stroke Alert" to receiving hospital is paramount with stroke patients.
- Perform and interpret 12 lead ECG.
- Determine onset of symptoms. Onset is defined as the last time the patient was verified as not having a neurological deficit. If the time since onset of symptoms is less than 3 hours, complete the State of Delaware Fibrinolytic Checklist and turn the checklist over to the appropriately trained healthcare provider.

SEIZURES (ACTIVE)

- If blood sugar is less than 80 mg/dl, administer up to 25 g of dextrose IV.
- Administer 1mg Glucagon IM, IN if the blood sugar is less than 80 mg/dl and an IV cannot be established.
- Administer up to 5 mg midazolam (Versed®) IV (slowly) for continued seizure activity. If unable to obtain intravenous access, midazolam should be given IM or IN.
- Administer 5 g magnesium sulfate IV infused over 10 minutes for seizures secondary to eclampsia.

Contact medical control for consideration of additional midazolam (Versed®) if the patient continues to have seizures following the initial dose.

ALLERGIC REACTIONS

Moderate Allergic Reaction

INDICATIONS: *Generalized allergic manifestations such as urticaria or history of an allergic exposure without airway compromise or shock.*

- Consider the administration of 25-50 mg diphenhydramine (Benadryl®) IV, IM, or PO.
- Consider the administration of prednisone 60 mg PO.

Severe Allergic Reaction

INDICATIONS: *Generalized allergic manifestations such as urticaria or history of an allergic exposure with:*

1. *airway obstruction (partial or complete) **OR***
2. *systolic blood pressure less than 80 mmHg with clinical evidence of shock.*

- Establish intravenous access using normal saline and administer a fluid bolus of 500 ml.
- Administer 0.25 mg epinephrine (1:10,000) IV over a one-minute interval. If unable to establish intravenous access, 0.5 mg epinephrine (1:1,000) should be given IM.
- Reassess patient -- if acute respiratory obstruction persists or systolic blood pressure is less than 80 mmHg with clinical evidence of shock, repeat 0.25 mg epinephrine (1:10,000) IV over a one-minute interval.
- Administer a second intravenous bolus of 500 ml normal saline if systolic blood pressure remains less than 80 mmHg with continued evidence of clinical shock.
- Administer 50 mg diphenhydramine (Benadryl®) IV. If unable to obtain intravenous access, diphenhydramine may be given IM.
- Administer 125 mg methylprednisolone (Solu-Medrol®) IV.

NON-TRAUMATIC HYPOTENSION

INDICATIONS: *Pulse greater than 60 bpm AND systolic blood pressure less than 80 mmHg AND absence of radial pulses bilaterally and/or clinical evidence of shock (altered mental status, pale/cool/clammy skin).*

- Infuse up to a 500 ml bolus of NSS if clinical signs of CHF are not present
- Reassess vital signs and lung sounds.
- Infuse up to an additional 500 ml bolus of NSS if clinical signs of CHF are not present.
- **Contact medical control** for consideration of a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.

ACUTE CORONARY SYNDROMES (ACS)

*Suspect ACS for the following presentations: classic anginal chest pain, atypical chest pain, or anginal equivalents such as dyspnea, palpitations, syncope or pre-syncope, general malaise, or DKA. **All of these patients should have 12 lead performed and interpreted.***

INDICATIONS: Classic anginal chest pain OR patients whose 12 lead is suspicious for ischemia.

- Administer 162 mg aspirin PO, even if patient is pain free.
- Administer 0.4 mg nitroglycerin (NTG) SL. Repeat 0.4 mg NTG every 3-5 minutes until pain, signs of ischemia, or injury resolves.
 - **IV must be established prior to NTG administration for patients not currently prescribed and taking NTG.**
 - If systolic blood pressure (SBP) is less than 100 mmHg, discontinue NTG administration until SBP recovers to greater than 100 mmHg.
- Apply 1" nitroglycerin paste early in patient contact, even if patient is pain free.
- If chest pain, signs of ischemia or anxiety continue after the administration of three (3) nitroglycerin and if systolic BP is greater than 100 mmHg, consider administration of up to 100 mcg fentanyl (administered in up to 50 mcg increments given every five (5) minutes).
- Contact medical control for consideration of the administration of up to 5 mg of Versed in the presence of suspected cocaine usage within the past 72 hours.
- If patient displays persistent ventricular ectopy (defined as runs of V-Tach or R-on-T PVCs) refractory to oxygen and NTG administration, consider administration of 150 mg amiodarone (Cordarone®) IV infused over 10 minutes. Withhold amiodarone if the heart rate or pulse is less than 50 beats per minute.
- Consider performing diagnostic cardiac marker blood tests.*
- Repeat 12 lead ECG throughout transport as necessary.

Early notification to receiving hospital is paramount in the treatment of ACS.

The 12 lead ECG may be deferred initially in order to stabilize the hemodynamically unstable patient.

Withhold nitrates and contact medical control if the patient relates taking sildenafil (Viagra®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®) within the last 48 hours.

Do not administer aspirin if the patient reports an allergy to aspirin or other NSAIDs.

**Cardiac marker blood tests may be performed as a research study by agencies approved by the Office of Emergency Medical Services.*

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

*Suspect STEMI for the following presentations: classic anginal chest pain, atypical chest pain, or anginal equivalents such as dyspnea, palpitations, syncope or pre-syncope, general malaise, or DKA. **All of these patients should have 12 lead performed and interpreted.***

INDICATIONS: Suspicion of ACS and a prehospital 12 lead diagnosis of STEMI.

- Administer 162 mg aspirin PO, even if patient is pain free.
- Transport when practical to an emergent Percutaneous Coronary Intervention (PCI) capable facility for patients diagnosed with STEMI.
- Early notification to receiving hospital is paramount in the treatment of STEMI; request a "Heart Alert"
- Administer 0.4 mg nitroglycerin (NTG) SL. Repeat 0.4 mg NTG every 3-5 minutes until 12 lead signs of injury resolve.
 - **IV must be established prior to NTG administration for patients not currently prescribed and taking NTG.**
 - If systolic blood pressure (SBP) is less than 100 mmHg, discontinue NTG administration until SBP recovers to greater than 100 mmHg.
- Apply 1" nitroglycerin paste early in patient contact, even if patient is pain free.
- Consider administration of up to 100 mcg fentanyl (administered in up to 50 mcg increments given every five (5) minutes.) if systolic BP is greater than 100 mmHg (may be administered as soon as IV is established).
- Contact medical control for consideration of the administration of up to 5 mg of Versed in the presence of suspected cocaine usage within the past 72 hours.
- If patient displays persistent ventricular ectopy (defined as runs of V-Tach or R-on-T PVCs) refractory to oxygen and NTG administration, consider administration of 150 mg amiodarone (Cordarone®) IV infused over 10 minutes. Withhold amiodarone if the heart rate or pulse is less than 50 beats per minute.
- Repeat 12 lead ECG throughout transport.
- Complete the State of Delaware Fibrinolytic Checklist and turn the checklist over to the appropriately trained healthcare provider.

The 12 lead ECG may be deferred initially in order to stabilize the hemodynamically unstable patient.

Do not administer aspirin if the patient reports an allergy to aspirin or other NSAIDs.

Withhold nitrates and contact medical control if the patient relates taking sildenafil (Viagra®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®) within the last 48 hours.

HEMODYNAMICALLY COMPROMISING BRADYCARDIA

INDICATIONS: *Pulse less than 60 bpm with clinical evidence of shock (i.e., altered mental status, pale/cool/clammy skin, systolic blood pressure less than 80 mmHg OR absence of radial pulses bilaterally).*

- Initiate transcutaneous cardiac pacing (TCP). Do not delay while awaiting IV access. Set rate at 80 per minute. Rapidly increase the output (MA) until capture occurs, or the maximum MA is reached.
 - TCP may be deferred until after atropine administration if intravenous access can be rapidly obtained, and the patient's condition is not deteriorating.
 - **If electrical or mechanical capture is achieved**, do not give atropine, unless capture is lost, and bradycardia recurs.
 - If the patient is experiencing discomfort due to pacing and the systolic blood pressure is greater than or equal to 100 mmHg, administer up to 5 mg midazolam (Versed®) IV or IN for sedation.
- Administer 0.5 mg atropine IV. Repeat 0.5 mg atropine IV every 3-5 minutes until a maximum of 3 mg of atropine is administered or the pulse rate is 60 bpm or greater.
- Administer an intravenous bolus of up to 500 ml NSS if clinical signs of CHF are not present.
- **Contact medical control** for consideration of a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.

Contact medical control for consideration of glucagon IV if a beta-blocker overdose is suspected.

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

STABLE TACHYCARDIA

INDICATIONS: A wide complex tachycardia (QRS \geq 0.12 seconds) presumed to be ventricular tachycardia (VT), with a rate exceeding 100 bpm, or a narrow complex tachycardia (QRS $<$ 0.12 seconds) other than sinus tachycardia, with a rate exceeding 150 bpm. There should be no evidence of trauma.

For purposes of this Standing Order, **STABLE** is defined as a patient with a systolic blood pressure greater than 80 mmHg.

- Consider Valsalva maneuver. (Carotid massage may not be performed.)
- If the rhythm is a **wide complex tachycardia** at a rate exceeding 100 bpm, administer 150 mg amiodarone (Cordarone[®]) IV infused over 10 minutes.
- If the rhythm is a **narrow complex tachycardia**, other than sinus tachycardia, atrial fibrillation or atrial flutter, at a rate exceeding 150 bpm, administer 6 mg adenosine (Adenocard[®]) IV rapidly.
 - If there is no response to the initial 6 mg dose, administer 12 mg adenosine.
 - If there is no response to the second dose, administer 12 mg adenosine.
- If the rhythm is a **narrow complex atrial fibrillation, atrial flutter, or SVT refractory to adenosine**, at a rate exceeding 150 bpm, and the patient is without signs or symptoms of congestive heart failure, administer 0.25 mg/kg diltiazem (Cardizem[®]) IV over 2 minutes.
 - If there is no response to the initial dose of diltiazem after 15 minutes, **contact medical control** for consideration of administration of 0.35 mg/kg diltiazem IV over 2 minutes.

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

Adenosine: potentiated by dipyridamole (Persantine), use half (1/2) doses. Use with caution with patients on carbamazepine (Tegretol), digoxin and verapamil.

Diltiazem (Cardizem) use with caution, contact medical control when patients are on digoxin.

UNSTABLE TACHYCARDIA

INDICATIONS: A wide complex tachycardia (QRS \geq 0.12 seconds) presumed to be ventricular tachycardia (VT), with a rate exceeding 100 bpm, or a narrow complex tachycardia (QRS $<$ 0.12 seconds) other than sinus tachycardia, with a rate exceeding 150 bpm. There should be no evidence of trauma.

For purposes of this Standing Order, UNSTABLE is defined as systolic blood pressure less than 80 mmHg OR radial pulses are absent bilaterally, with clinical evidence of shock. Patients with altered mentation and clinical evidence of shock are UNSTABLE, even if the systolic blood pressure is greater than 80 mmHg.

- If appropriate, consider adenosine administration for narrow complex tachycardia if IV is established.
- Consider the administration of up to 0.2 mg/kg etomidate (Amidate®) IV prior to cardioversion of an alert patient.
- Perform synchronized cardioversion using 100 joules.
- Perform synchronized cardioversion using 200 joules.
- Perform synchronized cardioversion using 300 joules.
- Perform synchronized cardioversion using 360 joules.
- Administer intravenous fluid bolus up to 500 ml.
- Upon successful conversion, perform and interpret 12 lead ECG.
- For wide complex tachycardia, administer 150 mg amiodarone (Cordarone®) IV infused over 10 minutes:
 - If there is no response to cardioversion,
 - OR upon successful conversion,
 - AND if needed for a recurrence.

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

Biphasic devices may use FDA approved/recommended energy settings.

INITIATION/TERMINATION OF RESUSCITATIVE EFFORTS

INITIATION INDICATIONS: *For initiation of cardiopulmonary resuscitation for patients in cardiac arrest*

- CPR shall be initiated **unless** one or more of the following criteria apply:
 - Resuscitation would place the rescuer at significant risk of physical injury.
 - The rescuer is presented with an apparently valid Prehospital Advanced Care Directive (PACD) signed by a physician.
 - Obvious signs of death are present, including (but not limited to) rigor mortis, dependent lividity, or injuries incompatible with life.
 - Decapitation
 - Body fragmentation
 - Severe crush injury to head (without vital signs)
 - Severe crush injury to chest (without vital signs)
 - Severe thermal burns (without vital signs)
 - Gunshot wounds to the head with lateral entrance wound and an opposite side exit wound (without vital signs)
 - Decomposition of the body.
 - Skeletalization
 - Severe bloating (without vital signs)
 - Skin slough (without vital signs)
- For patients not meeting the criteria for initiation of cardiopulmonary resuscitation, withhold resuscitation and initiate medical consultation in order to complete the State of Delaware's Dead on Paramedic Arrival (DOPA) documentation.

TERMINATION INDICATIONS: *For the termination of cardiopulmonary resuscitation*

- CPR in the prehospital setting may be discontinued when both of the following criteria apply:
 - Patients in cardiopulmonary arrest who, despite effective chest compressions, airway management and rhythm-specific ACLS therapy, remain in cardiopulmonary arrest without any return of spontaneous circulation.
 - A decision is made in conjunction with on-line medical control that resuscitation should be terminated and the DOPA protocol will be followed.
- Resuscitation may be terminated without medical control during a Multi-Casualty Incident on patients with non-salvageable injuries as determined by START® Triage. This is reserved for events where EMS resources are required for stabilization of living patients.
 - Formal DOPA protocol will be initiated once resources allow.

Consider the use of capnography to assist with the decision to terminate resuscitative efforts.

**VENTRICULAR FIBRILLATION (VF) and/or
PULSELESS VENTRICULAR TACHYCARDIA (VT)**

- In the absence of effective CPR on arrival and when response time is greater than four (4) minutes, perform 2 minutes of chest compressions prior to first defibrillation or intubation.
- Defibrillate using 360 joules every 2 minutes.
- Perform 2 minutes of chest compressions between each defibrillation attempt.
- Administer 1 mg epinephrine (1:10,000) IV. Repeat 1 mg epinephrine (1:10,000) IV every 3-5 minutes if VF or pulseless VT persists.
- Consider administration of 2 g magnesium sulfate IV if Torsade de Pointes is identified.
- Administer 300 mg amiodarone (Cordarone®) IV, with a repeat dose of 150 mg after 10 minutes.

With return of spontaneous circulation:

- Administer 150 mg amiodarone (Cordarone®) IV infused over 10 minutes if patient has received one dose or less of amiodarone (Cordarone®).
- Initiate Induced Hypothermia standing order.

Guidelines

- *Biphasic devices may use FDA approved/recommended energy settings*
- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *Compressions should not be interrupted for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions. Consider early use of rescue airway device for difficult intubation.*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance, consider use of optional mechanical chest compression device.*
 - *Ensure complete recoil of the chest wall prior to the next compression*

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

- In the absence of effective CPR on arrival and when response time is greater than four (4) minutes, perform 2 minutes of chest compressions prior to first defibrillation or intubation.
- Consider **early** transcutaneous pacing for heart rates less than 60 bpm.
- Administer 1 mg epinephrine (1:10,000) IV. Repeat 1 mg epinephrine (1:10,000) IV every 3 to 5 minutes if asystole or PEA continues.
- For asystole or PEA at a ventricular rate less than 60 bpm, administer atropine 1 mg IV. Atropine 1 mg IV may be repeated every 5 minutes until ventricular rate is greater than 60 bpm or a total of 3 mg of atropine has been given.
- Administer intravenous bolus of normal saline of at least 500 ml.

With return of spontaneous circulation:

- Initiate Induced Hypothermia standing order.

Guidelines

- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *Compressions should not be interrupted for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions. Consider early use of rescue airway device for difficult intubation.*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance consider use of optional mechanical chest compression device.*
 - *Ensure complete recoil of the chest wall prior to the next compression*

Contact medical control for orders to administer calcium chloride and possibly sodium bicarbonate, if the patient has a history of chronic renal failure and either hemodialysis or peritoneal dialysis.

PROTOCOL FOR THE TELEMETRIC PRONOUNCEMENT OF DEATH

- Upon arrival at the scene of a patient with an illness or injury, the paramedics will follow applicable standing orders. If resuscitative efforts have been initiated by Ambulance Attendants or bystanders, the paramedics should proceed with patient assessment.
- In the following circumstances the paramedic may contact the medical control physician to request that the patient be pronounced dead at the scene.
 - **Injuries which are obviously incompatible with life.**
 - Decapitation
 - Body fragmentation
 - Severe crush injury to head (without vital signs)
 - Severe crush injury to chest (without vital signs)
 - Severe thermal burns (without vital signs)
 - Gunshot wounds to the head with lateral entrance wound and an opposite side exit wound (without vital signs)
 - **Decomposition of the body.**
 - Skeletalization
 - Severe bloating (without vital signs)
 - Skin slough (without vital signs)
 - **Absence of signs of life.***
 1. Pulselessness
 2. Apnea
 3. Fixed and dilated pupils
 4. Dependent lividity, **
 5. Generalized rigor mortis, ** (prior to lysis)
 6. Asystole on the ECG monitor (an ECG strip must be attached to the patient care report in every case).

* All must be present for a “medical patient” to be pronounced.

** In the case of blunt trauma patients, the medical control physician may waive requirement #4 and #5.

- Only the medical control physician may pronounce a patient dead, while in direct contact with the paramedic. It is not acceptable for the information on death pronouncement to be transmitted from the paramedic to the physician through an intermediary. The medical control physician must be physically present at the radio or telephone to receive the information directly from the paramedic.
- Once the medical control physician has pronounced the patient dead, the paramedic will notify the appropriate police department and the Delaware Medical Examiner’s Office if not already done.
- Removal of the decedent, once properly pronounced, is performed only if authorized by jurisdictional police agencies and the Medical Examiner.
- Once the patient is pronounced dead, the paramedic will obtain a case number from the dispatch center. In situations where more than one patient has been pronounced dead, identification will be assured by using the case number followed by a letter, beginning with “A” and progressing in alphabetical order (i.e. case #234567-A, #234567-B, #234567-C, etc.).

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- The case number is to be used by the paramedic to identify the decedent to the medical control physician for purposes of completing the death certificate.
- Upon pronouncement of a patient's death, the medical control physician will immediately complete a death certificate (under pronouncing physician section). The physician will include the assigned case number on the left upper margin of the death certificate. The death certificate will then be placed in a secure, but convenient location within the medical command facility, to be retrieved by the Medical Examiner's Investigator when the death falls within the jurisdiction of the Medical Examiner, or by the family-assigned funeral director in non-Medical Examiner's cases. A base report will be completed in the usual manner.
- After the patient has been pronounced dead, the paramedic will place a hospital type band around the patient's right ankle (any extremity is acceptable if right ankle is not present). The band should contain the following written information:
 - Case number
 - Paramedic identification number
 - Medical command facility name
 - Medical control physician identification number
 - Time and date of death pronouncement
 - Other information deemed appropriate by the paramedic crew
- The paramedic will notify the responsible family member that the patient is dead. Paramedics are encouraged to utilize appropriate support services to assist family members in grieving.
- Upon arrival of the police, paramedic supervisor or the investigator for the Medical Examiner, the paramedics and ambulance attendants will return to active status.
- Prior to completion of his/her work shift, the paramedic will file a complete, standard run report detailing in the usual manner the pertinent aspects of the case. The run report is to be distributed to the usual locations along with a copy to the pronouncing medical command facility. This paramedic run report is to be available at the medical command facility within twelve (12) hours of the run. If the paramedic is able to complete the run report prior to leaving the scene, copies of the run report are to be distributed in the usual manner so as to assure patient confidentiality. A copy may be left with an authorized Medical Examiner.
- The circumstances of death must be investigated by the Medical Examiner's office and/or the police having jurisdiction over the geographic area of pronouncement. Should the death be deemed a Medical Examiner's case, the Medical Examiner's office shall be responsible for the transportation of the body and the collection and completion of all necessary legal documents.
- Should the case not be deemed a Medical Examiner's case, the body may be transported by a licensed funeral director to the funeral home of the family's choosing. The collection and completion of all necessary legal documents shall be coordinated by the funeral director.
- The decedent may be taken to a hospital emergency department in select circumstances.

REFUSAL OF SERVICE

INDICATIONS: *Paramedics often respond to scenes where the patient wishes to decline service. It is important that the paramedic obtains the patient's informed consent before leaving the scene; otherwise the paramedic might be exposed to legal liability for abandonment of the patient.*

People who have no complaint or signs of illness or injury, no acute altered mental status, and no acute mental illness are not considered to be patients.

- Contact medical control for patients presenting or having originally presented with:
 - Suspicion of intoxication by drugs or alcohol
 - Suspicion of acute mental disease or suicidal or homicidal ideation
 - Suspicion of a significant head injury
 - Respiratory distress
 - Abnormal vital signs (normal vital signs are defined as a heart rate between 60-100 bpm, systolic blood pressure > 100 mmHg, respiratory rate 12-20 bpm, and a SaO₂ reading >95% on room air)
 - Altered mental status
 - An age less than 18 years
- Medical control is not required for all other patients unless concerns exist regarding the welfare of the patient. In the case of suspected patient coercion, domestic violence, abuse, etc. contact law enforcement.
- Inform the patient about needed treatment and possible outcomes. If the patient is felt to need treatment, every effort should be made to persuade the patient to consent to needed health care. Consider involving family, medical control and law enforcement.
- Obtain a signed Refusal of Service form and document the informed consent process, concerns, and, if applicable, the physician number on the appropriate report(s).

PEDIATRIC GENERAL PATIENT CARE

INDICATIONS: *Any patient who is 12 years of age or less requiring pre-hospital medical evaluation by a pre-hospital health care provider in the State of Delaware.*

People who have no complaint or signs of illness or injury, no acute altered mental status, and no acute mental illness are not considered to be patients.

The Pediatric General Patient Care protocol will be followed in conjunction with all other applicable protocols.

- Respond using lights and sirens in accordance with Priority Medical Dispatch® (PMD®) protocols currently approved by Delaware EMS Medical Directors.
- Perform scene survey.
- Observe universal precautions.
 - Follow your agency's infection control policy.
- Consider the need for additional resources.
- Determine responsiveness using AVPU.
- Evaluate Airway, Breathing, Circulation, and Disability, Exposing the patient as necessary.
- Secure a patent airway appropriately.
- Manage cervical spine appropriately.
- Treat life-threatening conditions as necessary per specific treatment protocols.
- **Contact medical control** for consideration of a needle chest decompression.
- Assess body systems as appropriate.
- Monitor patient via the use of pulse oximetry and/or capnography, as appropriate.
- Monitor blood glucose level as appropriate.
- Administer oxygen as appropriate. (Maintain a SaO₂ of at least 92%)
- Obtain medical history (HPI, PMH, allergies, and medications).
- Evaluate blood pressure, pulses, respiratory rate, and tactile temperature. Reassess with a frequency indicated by patient condition.
- Monitor cardiac rhythm and/or 12 lead ECG as appropriate.
- Assign treatment priority and make transport decision.
- Establish intravenous access with normal saline infused as appropriate.
- **Use the Broselow™ tape to estimate drug dosages.**
- Consider intraosseous access, if IV access cannot readily be obtained for Priority 1 patients in extremis that are in need of medication or fluid resuscitation. If IO access is obtained, all IV medications can be administered IO.

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- Administer 0.5 - 1 mg/kg lidocaine IO over 1 minute in the conscious patient if not contraindicated
 - Administer 10 ml NSS rapid IO push
 - All IV medications can be administered IO
- **Contact medical control** for consideration of intraosseous access if IV access cannot readily be obtained for all other Priority 1 patients.
- Consider the insertion of an orogastric tube if the patient is successfully intubated.
- Consider the administration of 2 mg (older than 2 years and under the age of 6 years) or 4 mg (6 years or older) Zofran (Ondansetron®) ODT, IV or IM for nausea and vomiting.
- Contact medical control as soon as possible.
- Contact medical control for BLS release if appropriate.
- Secure patient in ambulance using appropriate equipment per ambulance design and agency standard operating procedures.
- Transport patient to an appropriate medical facility via appropriate mode of transportation without delay. Transport should be made safely and in a manner as to prevent further injury through the appropriate use of lights and sirens or no lights and sirens. **The highest medically trained practitioner engaged in patient care will determine the medically appropriate mode of transportation based upon the patient's presenting medical condition. This practitioner will communicate with the transporting EMS vehicle's operator and advise him/her as to the transport mode to be utilized.**
- Responsibility of care does not end until transfer care of the patient to an appropriately trained health care provider.
- Document relevant findings and treatments.

Priority I Patient suffering from an immediate life or limb threatening injury or illness.

It is the consensus of the EMS medical directors that during transport to the hospital lights and sirens are not medically indicated for many Priority I patients.

Priority II Patients suffering from an injury or illness that if left untreated could potentially threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority II patients.

Priority III Patient suffering from an injury or illness that requires medical attention but does not threaten life or limb.

It is the consensus of the EMS medical directors that during transport to the hospital, lights and sirens are not medically indicated for Priority III patients.

The approved pharmacology manual should be used for medication reference.

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It should be noted that the protocol above is a guideline to be followed in as much as it aids in providing appropriate and timely medical care. The ALS provider may change the order or omit steps listed above as dictated by sound judgment of the care provider and/or presentation of the patient(s).

The following information should be passed on in either verbal or written form at the time of patient transfer: HPI, PMH, allergies, medications, vital signs, SaO₂, EtCO₂, cardiac rhythm, pre-hospital treatments, and patient's response to those treatments.

CO-oximetry may be performed as an option by agencies carrying CO monitoring equipment.

PEDIATRIC ACUTE RESPIRATORY DISTRESS

INDICATIONS: *Acute exacerbation of asthma and reactive airway disease; cough, shortness of breath, air hunger, wheezing, diminished breath sounds, retractions, and tachypnea.*

Contact medical control prior to medication administration if the patient's heart rate is greater than 180 beats per minute.

- Consider capnography.
- If patient has a history of asthma or is actively wheezing and is less than 2 years of age: administer one unit dose of albuterol (2.5 mg) via nebulized aerosol by face mask or by blow-by. **Contact medical control** for additional doses.
- If patient has a history of asthma or is actively wheezing and is 2 years of age or older: administer one unit dose of albuterol (2.5 mg) via nebulized aerosol.
- In children two (2) years of age or greater, who continue to exhibit respiratory distress, consider the administration of 0.5 mg nebulized ipratropium bromide (Atrovent[®]) with 2.5mg albuterol.
 - In children less than two (2) years of age, **contact medical control** for an ipratropium bromide dosage.
- Consider the administration of 0.01 mg/kg epinephrine 1:1,000 IM for patients in severe respiratory distress (maximum dose of intramuscular epinephrine is 0.3 mg).
- For patients suspected of having croup, consider administration of nebulized saline for inhalation. For continued distress, **contact medical control** for consideration of the administration of 2 ml of epinephrine 1:1000 diluted with 3 ml of saline for inhalation via nebulizer.
- Patients who present with acute respiratory distress of sudden onset accompanied by fever, drooling, hoarseness, stridor, and sitting forward in the tripod position should be suspected of having a partial airway obstruction. Do nothing to upset the child. Perform critical assessments only and have parent administer blow-by oxygen. Transport immediately. If patient's airway becomes obstructed, in the setting of potential epiglottitis, attempt airway management primarily with BVM.
- Consider the administration of prednisone 1-2 mg/kg PO (up to 60 mg) for mild to moderate respiratory distress or 2 mg/kg methylprednisolone (Solu-Medrol[®]) IV (up to a max dose of 125 mg) for severe respiratory distress secondary to asthma.
- **Contact medical control** for consideration of administration of 25 mg/kg magnesium sulfate (up to a max dose of 2 g) IV infused over 10 minutes for continued severe respiratory distress.

For patients prescribed and taking levalbuterol (Xopenex[®]) via nebulizer, substitution of the patient's own medication in place of albuterol is acceptable.

Usual Xopenex doses: 0.31 mg/3 ml; 0.63 mg/3 ml; 1.25 mg/3 ml

PEDIATRIC ALTERED MENTAL STATUS

INDICATIONS: Incomprehensible speech, inappropriate verbal responses, inability to follow verbal commands, decreased responsiveness, or unresponsiveness.

- If blood sugar is less than 80 mg/dl (40 mg/dl for newborn) via glucometer, administer 0.5 g/kg dextrose IV at the following dilutions (max dose 25 g):
 - Dextrose 25% (D₂₅) at 2 ml/kg
 - Dextrose 10% (D₁₀) at 5 ml/kg for neonates
- Administer glucagon 1 mg IM, IN if unable to obtain intravenous access.
- Consider the administration of up to 0.1 mg/kg naloxone (Narcan[®]) IV, IN, or IM (maximum dose is 2 mg) for suspected drug overdose.

Contact medical control for consideration of sodium bicarbonate for tricyclic antidepressant overdose, glucagon for beta blocker overdose, and calcium chloride for calcium channel blocker overdose.

Consider nasal prong EtCO₂ monitoring along with pulse oximetry to insure adequate oxygenation and ventilation.

If a glucometer fails or is not immediately available, proceed with appropriate dosage of D50 or Glucagon.

PEDIATRIC SEIZURES (ACTIVE)

- If blood sugar is less than 80 mg/dl (40 mg/dl for newborn) via glucometer, administer 0.5 g/kg dextrose IV at the following dilutions (max dose 25 g):
 - Dextrose 25% (D₂₅) at 2 ml/kg
 - Dextrose 10% (D₁₀) at 5 ml/kg for neonates
- Administer glucagon 1 mg IM, IN if unable to obtain intravenous access.
- Administer 0.2 mg/kg midazolam (Versed[®]) up to a max dose of 5 mg IV, IN, or IM for continued seizure activity.

PEDIATRIC SHOCK and HYPOTENSION

INDICATIONS: *Clinical evidence of shock including: altered mental status, tachycardia, pale/cool/clammy skin, delayed capillary refill, and/or absence of radial/brachial pulses bilaterally.*

- For heart rate less than 60 bpm refer to bradycardia protocol
- Infuse a 20 ml/kg fluid bolus of normal saline.
- If signs of hypovolemic shock persist, boluses may be repeated at the same volume up to a maximum of 60 ml/kg.
- **Contact medical control** for consideration of additional fluid bolus and/or a 5-20 mcg/kg/min dopamine infusion for continued hypotension not due to hypovolemia.

PEDIATRIC ALLERGIC REACTIONS

Moderate Allergic Reaction

INDICATIONS: Allergic manifestations such as urticaria or history with allergic exposure without airway compromise or shock.

- In patients over the age of two (2) years, consider the administration of 12.5 - 25 mg diphenhydramine (Benadryl®) PO without the necessity of intravenous access.
- Consider the administration of prednisone 1 - 2 mg/kg up to 60 mg PO.

Contact medical control for patients 2 years of age or under OR to give diphenhydramine [Benadryl®] IM.

Severe Allergic Reaction

INDICATIONS: Generalized allergic manifestations such as urticaria or history of an allergic exposure with:

1. airway obstruction (partial or complete) **OR**
 2. clinical evidence of shock including altered mental status, confusion, delayed capillary refill, and cool, clammy, or mottled skin.
- Administer 0.01 mg/kg (0.1 ml/kg) epinephrine (1:10,000) IV over a one-minute interval. If unable to establish intravenous access, Administer 0.01 mg/kg epinephrine 1:1,000 (maximum 0.3 mg) IM.
 - If respiratory distress and clinical shock are still present and there is no evidence of supraventricular tachycardia, ventricular ectopy, or ventricular tachycardia: repeat 0.01 mg/kg epinephrine 1:10,000, (maximum 0.25 mg) IV over a one-minute interval.
 - Administer 1 mg/kg diphenhydramine (Benadryl®) IV, or IM (maximum dose is 50 mg).
 - Administer an intravenous bolus of 20 ml/kg normal saline if shock persists. If signs of shock persist, bolus may be repeated at the same volume up to 2 additional times for a maximum of 60 ml/kg.
 - Administer 2 mg/kg methylprednisolone (Solu-Medrol®) IV up to a max dose of 125 mg.

PEDIATRIC BRADYCARDIA

INDICATIONS: *Heart rate less than 60 bpm with clinical evidence of shock including: altered mental status, pale/cool/clammy skin, delayed capillary refill, and/or absence of radial/brachial pulses bilaterally.*

- If severe cardiorespiratory compromise is present as evidenced by poor perfusion, hypotension, or clinical evidence of shock continues despite adequate ventilation and oxygenation, begin chest compressions if the heart rate remains less than 60 beats per minute.
- Administer 0.01 mg/kg epinephrine (1:10,000). Repeat every 3-5 minutes.
- Administer 0.02 mg/kg atropine. Minimum dose is 0.1 mg IV. Maximum single dose is 0.5 mg IV. May be repeated once in 3-5 minutes.

PEDIATRIC TACHYCARDIA

INDICATIONS: A wide complex tachycardia ($QRS \geq 0.08$ seconds) presumed to be ventricular tachycardia (VT), with a rate > 180 bpm in children more than 1 year old or > 220 bpm in children less than 1 year OR a narrow complex tachycardia ($QRS \leq 0.08$ seconds) other than sinus tachycardia, with a rate > 180 bpm in children > 1 year old or > 220 bpm in children less than 1. There should be no evidence of trauma

For purposes of these Standing Orders, **STABLE** is defined as a patient with signs of adequate tissue perfusion, not in cardiac arrest, and not displaying the signs or symptoms of slow capillary refill, altered mental status, shock or pulmonary edema.

- Consider Vagal maneuvers (Valsalva, ice packs applied to face; Carotid massage may not be performed)
- Administer fluid bolus of 20ml/kg of normal saline (if no signs of pulmonary edema)
- Obtain 12 lead EKG on all patients
- **Contact medical control for the consideration of:**
 - If the rhythm is a wide complex tachycardia at a rate exceeding 180 in children > 1 year old or 220 in infants less than 1, administer 5mg/kg Amiodarone IV (up to a max of 150mg) infused over 10 minutes.
 - If the rhythm is a narrow complex tachycardia (SVT) at a rate exceeding 180 in children > 1 year old or 220 in infants less than 1, administer adenosine (Adenocard) 0.1mg/kg IV max dose 6mg. May repeat at 0.2mg/kg IV max dose of 12mg.

If the patient exhibits signs of poor tissue perfusion, (delayed capillary refill, altered level of consciousness, shock or pulmonary edema) the following treatment modalities should be considered.

- Synchronized cardioversion: 0.5 to 1 J/kg if this is not effective increase to 2 J/kg. Cardioversion should only be attempted a total of twice.
- Consider sedation but not to delay cardioversion, 0.2mg/kg etomidate (Amidate®) to a max dose of 20mg.

**PEDIATRIC VENTRICULAR FIBRILLATION (VF) AND/OR
PULSELESS VENTRICULAR TACHYCARDIA (VT)**

- In the absence of effective CPR on arrival and when response time is greater than four (4) minutes, perform 2 minutes of chest compressions prior to first defibrillation or intubation.
- Defibrillate using 2 joules/kg
- Perform 2 minutes of chest compressions between each defibrillation attempt.
- Defibrillate using 4 joules/kg every 2 minutes.
- Administer 0.01 mg/kg epinephrine (1:10,000) IV. Repeat every 3-5 minutes for the duration of resuscitation.
- Consider administration of 25 mg/kg magnesium sulfate IV if Torsade de Pointes is identified.
- Administer 5 mg/kg amiodarone (Cordarone®) bolus IV (maximum 300 mg per dose). May be repeated twice every ten minutes if VF/VT continues. Total of all doses not to exceed 450 mg.
- Follow each medication administration with a single shock of 4 joules/kg and 2 minutes of chest compressions

With return of spontaneous circulation:

- Administer 5 mg/kg amiodarone (Cordarone®) IV infused over 20 minutes (maximum 300 mg). Total of all doses not to exceed 450 mg.

Guidelines

- *Biphasic devices may use FDA approved/recommended energy settings*
- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *Compressions should not be interrupted for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions. Consider early use of rescue airway device for difficult intubation.*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance*
 - *Ensure complete recoil of the chest wall prior to the next compression*

PEDIATRIC ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)

- Administer 0.01 mg/kg epinephrine (1:10,000). Repeat epinephrine every 3-5 minutes.
- Administer IV bolus of up to 20 ml/kg NSS, boluses may be repeated at the same volume up to a maximum of 60 ml/kg.

Guidelines

- *Ventilations*
 - *Ventilate at 8-10 breaths per minute to decrease intrathoracic pressure*
 - *Patients should be bagged using a one-hand squeeze*
- *Compressions*
 - *Compressions should not be interrupted for intubation or other procedures. Intubation should be performed during pulse/rhythm check or during compressions. Consider early use of rescue airway device for difficult intubation.*
 - *CPR should be adjusted to provide for an EtCO₂ reading of greater than 10 mmHg, with greater than 20 mmHg preferred to improve chance of return of spontaneous circulation (ROSC)*
 - *Ensure proper depth and rate of compressions and minimize hands-off time*
 - *Frequently switch providers performing chest compressions to maintain peak performance*
 - *Ensure complete recoil of the chest wall prior to the next compression*

PEDIATRIC AND ADULT TRAUMA

INDICATIONS: This Trauma Protocol applies to patients with any of the following field triage criteria:

Mechanism: Ejection from vehicle.
Death of passenger in same vehicle.
Extrication > 20 minutes.
Falls > two and one-half times the patient's height.
Vehicle telemetry consistent with high risk injury

Obvious injury:

Penetrating injury to the chest, abdomen, head, neck, proximal extremities or groin.
Major burns, inhalation injury, or trauma with burns.
More than one proximal long bone fracture.
Suspected spinal column or cord injury or limb paralysis.
Pelvic fracture (suspected on clinical grounds).
Flail chest, multiple rib fractures, or subcutaneous emphysema.
Major external bleeding.
Amputated limb.
Crush, de-gloving or mangled extremity
Open or depressed skull fracture

Vital Sign Abnormalities:

Adults: Glasgow Coma Scale < 14.
Systolic BP < 90 mmHg.
Respiratory rate < 10 or >29.
Heart rate < 50 or > 120 bpm.

Pediatrics: Pediatric Glasgow Coma Scale < 14.
Refer to the **Abnormal Vital Signs** section of the Broselow[™] tape.

Extenuating Circumstances: (Not stand alone criteria for the initiation of trauma protocol or helicopter transport.)

Pregnancy
Age < 15 or > 55 years
Known significant cardiac or respiratory disease
Rollovers with vehicle impact
High-speed crash: > 25 mph, auto deformity > 20" or inner intrusion >12"
Auto-pedestrian / auto-bicycle injury with significant impact
Motorcycle > 20 mph or rider thrown
Renal dialysis
Anticoagulation (Coumadin, Lovenox, heparin, Plavix) and bleeding disorders
(Factor deficiencies, ITP)

Note: If **YES** to extenuating circumstances, contact medical control and consider transport to closest trauma center.

Note: If **NO** to all above, routine transport.

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- **Contact medical control** for consideration of drug-facilitated intubation orders for patients if needed (applies only to agencies that offer drug-facilitated intubation).
- If unable to intubate, maintain cricoid pressure and resume ventilations via BVM pending placement of an appropriate airway device.
- **Contact medical control** for consideration of a needle chest decompression.
- Perform bilateral needle chest decompressions for trauma arrest patients (isolated penetrating head injuries excluded).
- For clinical shock, administer up to 20 ml/kg normal saline intravenously.
- For suspected unstable pelvic fractures, apply pelvic compression device per manufacturer.
- **In cases of severe hemorrhage:**
 - Apply direct pressure to the hemorrhaging wound
 - If direct pressure is not adequate to control hemorrhage, a provider may use a tourniquet for hemorrhage that is anatomically amenable to tourniquet application and note time of application.
 - For hemorrhage that cannot be controlled with above, apply approved hemostatic agent with direct pressure.
- **Initiate transport to an appropriate trauma facility without delay.**
 - Head or spinal trauma patients with GCS ≤ 8 or exhibiting new onset paralysis or paresis; direct transport to a trauma center with neurosurgical capabilities is preferred.
 - For patients over the age of 12, and transport times to trauma centers are relatively equal; transport patient to the higher level of care trauma center.
 - Consider helicopter transport if ground transport to the appropriate hospital is expected to exceed 20 minutes.
 - Isolated Burns - consider direct transportation to the nearest appropriate specialty burn facility via helicopter or ground without delay for patients with 2nd or 3rd degree burns greater than or equal to:
 - 20% BSA in adults
 - 10% BSA in ages less than 10 and over 50 years
 - 5% BSA in infants
 - 5% BSA of third degree burn in any patient
 - Circumferential burns or burns of the airway, neck, face, head, hands, feet, major joints or perineum
 - Patients with serious underlying medical conditions
 - Chemical burns with serious threat to functional or cosmetic impairment
 - Bandage burned areas using a dry or wet sterile dressing for burns <10% body surface area (BSA). For burns greater than or equal to 10% BSA, use dry sterile dressings only. Cover the patient and provide for an appropriate warm environment to prevent heat loss.

Trauma scene times should be less than 10 minutes unless there are extenuating circumstances. Reasons for scene times over ten minutes should be documented on the chart. Appropriate reasons for prolonged trauma scene times include extrication, awaiting BLS, securing scene safety, presence of multiple victims, etc.

ADULT AND PEDIATRIC INDUCED HYPOTHERMIA

INDICATIONS: *Return of Spontaneous Circulation (ROSC) in an intubated (advanced airway rescue device acceptable) cardiac arrest patient. If at any time during this protocol the patient has a loss of spontaneous circulation, discontinue cooling and treat with appropriate standing order.*

- **Exclusions:**

- Primary traumatic arrest
 - Arrest as the result of medical or traumatic hemorrhage
 - Purposeful response to painful stimuli
-
- **Contact medical control** for implementation of this standing order on patients under **16** years of age or those that have an obviously gravid uterus.
 - Patients must be transported to an induced hypothermia capable facility with preference given to a facility that can also perform PCI.
 - Perform and interpret a 12 lead ECG.
 - Conduct a neurological assessment:
 - Assess pupils (size, reactivity, equality)
 - Motor response to pain
 - Expose patient and apply ice packs to axilla, groin and neck.
 - Administer up to 5 mg midazolam (Versed) may repeat in 10 minutes for a maximum dose of 10mg. _____
 - Administer 0.1mg/kg of vecuronium IV with a maximum dose of 10 mg if airway monitoring indicates adequate oxygenation and ventilation.
 - Administer intravenous bolus of cold normal saline 30 ml/kg IV with a maximum of 2 liters.
 - Maintain a MAP of 90-100 mmHg using a 10-20 mcg/kg/min Dopamine infusion.

Guidelines

- *Do not delay transport for the purposes of cooling*
- *Patients develop metabolic alkalosis with cooling, do not hyperventilate*
- *It is important to report the neurological assessment to the receiving facility*
- *If the patient has not been given vecuronium and begins shivering contact medical control to discuss use of vecuronium despite airway status.*
- *Cold saline should be stored at a temperature of 4° Celsius (approximately 40°Fahrenheit).*

SELECTIVE SPINAL MOTION RESTRICTION

Apply this guideline to all patients involved in known or suspected blunt trauma.

Implement spinal motion restriction in the following circumstances:

- Significant multiple system trauma.
 - Severe head or face trauma.
 - If altered mental status (including drugs, alcohol and trauma) and:
 - No history available
 - Found in setting of possible trauma (e.g., lying at the bottom of stairs or in street);
or
 - Near drowning with a history or probability of diving.
 - Loss of consciousness after trauma.
 - Spinal pain or tenderness, including any neck pain with a history of trauma.
 - Numbness or weakness in any extremity after trauma
 - Patient with significantly painful distracting injury.
-

Modifiers:

High risk (should be immobilized):

- *Age > 64 years*
- *Dangerous mechanism (fall > 5 stairs, axial load, high speed MVC with ejection and / or rollover)*
- *Motorized recreation vehicles*
- *Bicycle collision*

Low Risk (may be cleared):

- *Simple low speed rear-end MVC without being pushed into oncoming traffic, without rollover, without being struck by a large vehicle or high speed vehicle*
- *Ambulatory at any time*

PATIENT RESTRAINT

- Patient care remains the primary responsibility of the EMS provider. The method of restraint shall not restrict the adequate monitoring of vital signs, ability to protect the patient's airway, compromise peripheral neurovascular status or otherwise prevent appropriate and necessary therapeutic measures. It is recognized that evaluation of many patient parameters requires patient cooperation and thus may be difficult or impossible.
- Soft restraints are to be used only when necessary in situations where the patient is potentially violent and may be of danger to themselves or others. Patients who are clinically competent retain a right to refuse transport. EMS providers must remember that aggressive violent behavior may be a symptom of medical conditions such as but not limited to:
 - Head trauma
 - Alcohol/drug related problems
 - Metabolic disorders (i.e., hypoglycemia, hypoxia, etc.)
 - Psychiatric/stress related disorders
- All restraints should have the ability to be quickly released, if necessary in an emergency.
- In the interest of the patient's safety, the person who was responsible for applying a restraining device that requires a key or special releasing device must physically remain with the patient regardless of the vehicle of transport. This policy is not intended to negate the need for law enforcement personnel to use appropriate restraint equipment to establish scene control or allow safe transport of patients who are in the custody of law enforcement.
- Patients should be transported in the supine position to ensure adequate respiratory and circulatory monitoring and management.
- The prone position should be a position of last resort and rarely used. This position carries a higher risk of patient injury or death.
- All restrained patients should be placed on a stretcher with adequate foam padding particularly underneath the head. Extremity restraints should be secured to the stationary portion of the stretcher frame.
- Stretcher straps should still be placed on all patients as these are analogous to seatbelts during transport.
- Restraints that use multiple knots or that may restrict chest wall motion are unacceptable.
- Restrained extremities should be monitored for color, sensory and motor function, pulse quality, and capillary refill at the time of application and frequently thereafter. The patient's respiratory status, pulse oximetry, or waveform capnography should be monitored during transport.
- After addressing and/or treating medical causes of aggressive or violent behavior, **contact medical control** for the consideration of the administration of Haldol and/or Versed as a chemical restraint.
- Restraint documentation on the EMS report shall include:
 - Reason for restraint
 - Agency responsible for restraint application (i.e., EMS, Police)

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- Documentation of serial cardio-respiratory status and peripheral neurovascular status
- Medical control must be contacted if a patient is deemed too violent or uncooperative to be safely transported using the restraint methods and devices permitted by their prehospital protocols.

This policy is not intended for the interfacility transport of medically cleared involuntarily committed psychiatric patients.

Clarification of Delaware BLS and Paramedic Restraint Policy

With regards to the following bullet item within the BLS and Paramedic **Patient Restraint Guidelines**:

- In the interest of the patient's safety, the person who was responsible for applying a restraining device that requires a key or special releasing device must physically remain with the patient regardless of the vehicle of transport. This policy is not intended to negate the need for law enforcement personnel to use appropriate restraint equipment to establish scene control or allow safe transport of patients who are in the custody of law enforcement.

The Delaware EMS Medical Directors agree that it is medically acceptable to have a police officer follow a restrained patient's ambulance to the hospital in their police vehicle, as long as they maintain a position and contact with the transporting ambulance that will allow the officer to quickly release any restraining device that requires a key or special releasing device that they have applied in the event of a sudden deterioration in a restrained patient's condition. _____

PEDIATRIC AND ADULT ENDOTRACHEAL INTUBATION

INDICATIONS: *Respiratory failure, inadequate ventilatory effort with minimal air exchange, severe dyspnea with an increased or decreased respiratory rate, retractions, difficulty speaking, extreme agitation, anxiousness, altered mental status, or situations where airway protective reflexes are lost (loss of gag reflex). Central cyanosis may be noted.*

- **Contact medical control** for consideration of implementation of the Drug Facilitated Intubation (DFI) protocol.
- For systems not utilizing DFI, **contact medical control** for consideration of administration of up to 0.4 mg/kg etomidate (Amidate®) IV as needed prior to intubation.
- Perform endotracheal intubation and ventilate with 100% oxygen.
- If unable to intubate or ventilate, maintain cricoid pressure and resume ventilations via BVM pending insertion of ^{an} approved rescue airway device.
- Surgical cricothyrotomy (greater or equal to 8 years of age) or needle cricothyrotomy (less than the age of 8 years) is authorized for the difficult airway when **unable** to ventilate and oxygenate a patient.
- Verify proper endotracheal tube placement and **document** via the following methods:
 - Visualization of tube passing through the vocal cords or the substitution of a whistle device (e.g. BAAM®) for nasotracheal intubation.
 - Visualization of the chest rising and falling with ventilations.
 - Presence of bilateral breath sounds and absence of air sounds over the epigastrium.
 - Clearing of the ET tube with lung inflation and misting of the tube with lung deflation.
 - SaO₂ reading.
 - Capnography with waveform reading. Every effort should be made to continuously monitor waveform on intubated patients. A printout of the capnography with waveform should be obtained upon transfer to the receiving facility for documentation purposes.
 - A printout of the **trend report** with the patient's heart rate, pulse oximetry and capnography readings will be presented to the receiving physician and copied for the agency's EMS medical director, regardless of intubation success.
- Ventilator Management (device dependant):
 - Tidal Volume should be set to 6-8 ml/kg of ideal body weight (maximum 650 ml)
 - Rate should be set:
 - 8-10 for cardiac arrest
 - To titrate as close to 35-45 mmHg via digital capnography for perfusing patients

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- To titrate as close to 30-35 mmHg via digital capnography for patients with a head injury and signs of impending herniation
- FiO₂ should be set to:
 - 100% O₂ for cardiac arrest
 - Titrate to maintain SpO₂ of at least 95% for perfusing patients
- Consider the administration of up to 5 mg midazolam (Versed®) (0.1 mg/kg midazolam for patients under the age of 12 years) IV as needed following intubation and placement confirmation in adults if the systolic blood pressure is greater than 100 mmHg or as appropriate per Broselow tape for pediatric patients.
- Consider the insertion of an orogastric tube for gastric distention for intubated patients.

*Oral endotracheal intubation is the preferred route of intubation. If unable to perform oral intubation, nasotracheal intubation should be attempted using an endotracheal tube with a **directional control tip** along with a whistle device (e.g. BAAM®).*

Capnography with waveform should be obtained and printed upon placement of the endotracheal tube, upon any movement of the patient (i.e. transfer to the stretcher or ambulance), and upon transfer of patient care to the receiving facility.

**The use of transport ventilators may be performed by agencies approved by the Office of Emergency Medical Services.*

QA/QI Parameters: 2 attempts per paramedic; 4 attempts per patient; attempt is passage of the laryngoscope blade past the patient's lips; greater than the above attempts requires medical control approval and/or variance report;

QA/QI Screen: at least three (3) endotracheal attempts per paramedic per year; at least 80% success rate; review of intubation trending data; agency EMS medical director determines if paramedic performance requires remediation; plan of remediation determined by EMS medical director in consultation with the paramedic's administration.

DRUG FACILITATED INTUBATION (DFI)

Indications: *Patients who require urgent or emergent endotracheal intubation but show evidence of incomplete relaxation. Patients who demonstrate a high probability of airway compromise during transport.*

ABSOLUTE CONTRAINDICATIONS:

- Any patient where it is anticipated that they cannot be effectively ventilated with a bag valve-mask after paralysis.
- Entrapped patients with inadequate access to the patient and airway.
- Patients who are at risk for hyperkalemia
- Personal or family history of malignant hyperthermia
- Degenerative or dystrophic neuromuscular disease (Amyotrophic lateral sclerosis & Guillian-Barre disease)

RELATIVE CONTRAINDICATIONS:

- Severe trauma to the mouth, upper, or lower airways
- Stridor or potential obstructed airway
- Morbidly obese patient
- Small mouth, short neck, or large tongue
- Penetrating eye injuries
- Renal failure
- No rescue airway (Pediatric patients)
- Children with special health care needs (motor dysfunction)

Preparation:

- Two certified ALS providers, both with credentials for DFI (Drug Facilitated Intubation), must be present. At least one must be a Delaware Certified Paramedic.
- Pre-oxygenate the patient with 100% oxygen prior to the DFI process (NRB mask or BVM).
- Assess for contraindications and for difficult airway anatomy. Rate the patient's neurological status (Glasgow Coma Scale).
- **Contact medical control** for orders to perform DFI.
- Apply and continuously monitor ECG and SpO₂ monitoring.
- Insure functioning IV. (Two functioning IV's recommended.)
- Prepare equipment including,
 - Intubation gear
 - Suctioning gear (running)
 - Thomas ETT holder
 - Capnography device
 - Approved rescue airway devices (e.g. Combitube, LMA and surgical cricothyrotomy devices)
- Calculate drug dosages and prepare all medications (refer to dosage table).

Drug Facilitated Intubation Process:

- Position patient properly with use of in-line stabilization for trauma patients.
- Monitor SpO₂ continuously.
- For suspected intracranial insult, administer 1.5 mg/kg lidocaine IV.
- For all patients less than or equal to 12 years of age, administer 0.02 mg/kg atropine IV, 3 minutes before succinylcholine.
- Apply cricothyroid pressure not releasing until the endotracheal tube is in place.
- Administer 20 mg etomidate (Amidate) IV. (0.4mg/kg etomidate IV for pediatric patients with a maximum dose of 20 mg)
- Administer 2.0 mg/kg (maximum dose 200 mg) of Succinylcholine rapid IV push.
- Make no more than 4 attempts (2 attempts per paramedic) to intubate the patient.
- Confirm placement (see protocol), and secure the endotracheal tube.

Successful Endotracheal Tube Placement:

- Continue capnography monitoring throughout the duration of the transport.
- Administer up to 5 mg midazolam (Versed) (0.1 mg/kg midazolam for patients under the age of 12 years) IV for continued sedation unless there is a systolic blood pressure less than 100 mmHg or as appropriate per Broselow tape for pediatric patients.
- Rate the patient's neurological status (Glasgow Coma Scale). Consider administration of 0.1 mg/kg vecuronium for anticipated prolonged transport time greater than 10 minutes or for combative patients.
- Consider implementation of Pain Management Standing Order.
- **Contact medical control** for consideration of administration of additional doses of midazolam.

Unsuccessful Endotracheal Tube Placement:

- Maintain cricoid pressure and resume ventilations via BVM.
- Insert an approved rescue airway device.
- Confirm placement and secure the rescue airway device.
- Apply the capnography and provide continual monitoring.
- If unable to place the rescue airway device, provide 2 rescuer BVM technique.
- Surgical cricothyrotomy (greater or equal to 8 years of age) or needle cricothyrotomy (less than the age of 8 years) is authorized for the difficult airway when **unable** to ventilate and oxygenate a patient.
- If given orders for second dose of succinylcholine, pre-treat with 0.5 - 2.0 mg atropine IV.

Verify Proper Endotracheal Tube Placement and Document via the Following Methods:

- Visualization of tube passing through the vocal cords or the substitution of a whistle device (e.g. BAAM[®]) for nasotracheal intubation.
- Visualization of the chest rising and falling with ventilations.
- Presence of bilateral breath sounds and absence of air sounds over the epigastrium.

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- Clearing of the ET tube with lung inflation and misting of the tube with lung deflation.
- SaO₂ reading.
- Capnography with waveform reading. Every effort should be made to continuously monitor waveform on intubated patients. A printout of the capnography with waveform should be obtained upon transfer to the receiving facility for documentation purposes.
- A printout of the **trend report** with the patient's heart rate, pulse oximetry and capnography readings will be presented to the receiving physician and copied for the agency's EMS medical director, regardless of intubation success.

Ventilator Management (device dependant):

- Tidal Volume should be set to 6-8 ml/kg of ideal body weight (maximum 650 ml)
- Rate should be set:
 - 8-10 for cardiac arrest
 - To titrate as close to 35-45 mmHg via digital capnography for perfusing patients
 - To titrate as close to 30-35 mmHg via digital capnography for patients with a head injury and signs of impending herniation
- FiO₂ should be set to:
 - 100% O₂ for cardiac arrest
 - Titrate to maintain SpO₂ of at least 95% for perfusing patients
- Consider the administration of up to 5 mg midazolam (Versed®) (0.1 mg/kg midazolam for patients under the age of 12 years) IV as needed following intubation and placement confirmation in adults if the systolic blood pressure is greater than 100 mmHg or as appropriate per Broselow tape for pediatric patients.
- Consider the insertion of an orogastric tube for gastric distention for intubated patients.

*Oral endotracheal intubation is the preferred route of intubation. If unable to perform oral intubation, nasotracheal intubation should be attempted using an endotracheal tube with a **directional control tip** along with a whistle device (e.g. BAAM®).*

Capnography with waveform should be obtained and printed upon placement of the endotracheal tube, upon any movement of the patient (i.e. transfer to the stretcher or ambulance), and upon transfer of patient care to the receiving facility.

**The use of transport ventilators may be performed by agencies approved by the Office of Emergency Medical Services.*

QA/QI Parameters: 2 attempts per paramedic; 4 attempts per patient; attempt is passage of the laryngoscope blade past the patient's lips; greater than the above attempts requires medical control approval and/or variance report;

QA/QI Screen: at least three (3) endotracheal attempts per paramedic per year; at least 80% success rate; review of intubation trending data; agency EMS medical director determines if paramedic performance requires remediation; plan of remediation determined by EMS medical director in consultation with the paramedic's administration.

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Refer to the Delaware Pharmacology manual for information concerning drug contraindications with this procedure.

All DFI procedures must have a completed procedural checklist sent to the agency for quality improvement purposes immediately after this DFI event takes place.

Delaware State Police may carry Vecuronium to use with medical control approval on successfully intubated patients during helicopter transport.

PEDIATRIC AND ADULT PAIN MANAGEMENT

INDICATIONS: *Moderate to severe pain*

CONTRAINDICATIONS: *Altered mental status, head injury, multi-system trauma, or SaO₂ less than 95%, systolic blood pressure less than 100 mmHg (80 mmHg in the pediatric patient)*

ADULT PATIENTS:

- For moderate to severe pain, consider administration of up to 50 mcg Fentanyl IV/IM/IN.
- For continued moderate to severe pain, may administration of up one (1) additional 50 mcg Fentanyl IV/IM/IN in five (5) minutes .
- **Contact medical control** for additional doses of Fentanyl.

PEDIATRIC PATIENTS:

- For moderate to severe pain, consider administration of 2 mcg/kg Fentanyl IV/IM/IN up to a max dose of 50 mcg.
- For continued moderate to severe pain, may administration of an additional 2 mcg/kg Fentanyl IV/IM/IN to a max dose of 50 mcg in five (5) minutes.
- **Contact medical control** for additional doses of Fentanyl.

PREHOSPITAL THROMBOLYTIC CHECKLIST

Inclusion Criteria – Cardiac: (1-3 or #4 must be present – check as applicable)

- _____ **Ischemic discomfort at rest for > 30 minutes.**
- _____ **Chest pain that has persisted for < 6 hours from the onset of symptoms.**
- _____ **ST elevation > 1mm in 2 contiguous limb leads (I, II, III, AVR, AVL, AVF) or**
- _____ **ST elevation > 2mm in 2 contiguous precordial leads.**
- OR
- _____ **Ventricular fibrillation**

Inclusion Criteria – Stroke:

- _____ **Onset of signs and symptoms consistent with stroke < 3 hours prior.**

Absolute Contraindications: (check as applicable)

- _____ **Previous hemorrhagic stroke at any time; other strokes or cerebral vascular events within past year.**
- _____ **Known intracranial neoplasm.**
- _____ **Active internal bleeding (except menses).**
- _____ **Suspected aortic dissection.**

Relative Contraindications: (Check as applicable)

- _____ **Severe uncontrolled hypertension at presentation with BP of >180/110 or a history of chronic severe hypertension.**
- _____ **Other intracerebral pathology.**
- _____ **Current use of anticoagulants, known bleeding disorders.**
- _____ **Recent trauma (2-4 weeks), including head trauma.**
- _____ **Prolonged (>10 minutes) and potentially traumatic CPR.**
- _____ **Major Surgery (<3 weeks prior).**

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- _____ **Non-compressive punctures (including current use of Hickman catheter, PIC Line or subclavian line and/or one recent removed).**
- _____ **Recent (2-4 week) history of internal bleeding or active peptic ulcer.**
- _____ **History of streptokinase exposure within 2 years or a prior allergic reaction to streptokinase.**
- _____ **Pregnancy**

CINCINNATI PREHOSPITAL STROKE SCALE

Facial Droop

Normal: Both sides of face move equally

Abnormal: One side of face does not move at all

Pronator Drift

Normal: Both arms move equally or not at all

Abnormal: One arm drifts compared to the other

Speech

Normal: Patient uses correct words with no slurring

Abnormal: Slurred or inappropriate words or mute

ALS EQUIPMENT INVENTORY

<u>ALS Equipment</u>	<u>Minimum</u>	<u>Intubation Equipment</u>	<u>Minimum</u>
ALS Radio/cell phone for base station communication	1	Nasopharyngeal airways	2
EKG monitor/defibrillator w/ 12 lead capability (adult and pediatric) W/ trend capability for HR, PO & EtCO2	1	Oropharyngeal airways (0-6)	1 set
Pulse Oximeter (adult and pediatric)	1	Endotracheal tubes (2.5,3,3.5,4,5,6,7,8,9)	2 ea.
Capnography - electronic with waveform capable of ET and nasal CO2 determinations	1ea peds and adult	OEMS Approved rescue airway devices adult and pediatric	1 ea.
CO-oximetry device (optional)	1	Miller Blades (0,1,2,3,4)	1 set
External pacemaker	1	Macintosh blades (1,2,3,4)	1 set
Spare batteries	2	Laryngoscope handle, adult	2
Spare EKG paper	1 roll	Laryngoscope handle, pediatric	2
Monitoring electrodes	8	Magill Forceps, adult	1pr
Monitoring cables	1 set	Magill forceps, pediatric	1pr
Defibrillation pads* (adult and pediatric)	2 pair	CPAP equipment	1 set
Pacemaker pads*	1 pair	Stylette, adult and pediatric	1
*Combi-pads maybe substituted	1 pair	Gastric tubes (8,10,12,14,16,18)	1 ea.
Glucometer	1		
Pelvic compression device	1	Pertrach or Quicktrach (4.0 mm)	1 kit
Broselow tape	1	Tape, adhesive or twill	1 roll
<u>Intravenous Equipment</u>			
Catheter, 24g	6	syringes, 20ml	4
Catheter, 22g		Bougie-flex guide intubation aid (optional)	2
Catheter, 20g	6	Water based lubricant	1 tube
Catheter, 18g	6	Spare laryngoscope bulb	2
Catheter, 16g	6	Spare laryngoscope batteries	2
Catheter, 14g	6		
I/O needles (w/depth control mechanism for pediatrics and adults)	2	<u>Medication Administration</u>	
Administration set, 10-15gtt/ml	4	1ml syringes w/ 25g needles	4
Administration set, 60 gtt/ml	4	3-10 ml syringes	8
Normal Saline solution, 1000ml	4	19g needles	4
Normal Saline solution, 500ml	2	21g needles (1.5 in)	4
Normal Saline solution, 100ml	1	Nebulizers	2
Blood draw device with appropriate blood tubes	2	MAD Device	1

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Intravenous Equipment (cont.)

Tourniquets (optional)	2
OEMS approved point of care testing device for cardiac markers (optional)	1
OEMS approved Hemostatic Agents (optional)	1
Site preparation material	2

Additional Equipment

Dental repair kit (TEMS Protocol)	1
Transport Ventilator (optional)	1
Mechanical chest compression device (optional)	
Asherman chest seals (optional)	1

MEDICATION LIST

Adenosine (Adenocard[®])
Albuterol (Proventil[®], Ventolin[®])
Amyl Nitrite*
Amiodarone (Cordarone[®])
Aspirin
Atropine
Bumetanide (Bumex[®]).....may be substituted for Lasix[®] (1 mg = 40 mg Lasix[®])
Calcium chloride
Calcium Gluconate*
Dexamethasone (Decadron[®], Hexadrol[®])may be substituted for Solu-medrol[®] (20 mg = 125 mg Solu-medrol[®])
Dextrose
Diazepam*
Diltazem (Cardizem[®])
Diphenhydramine (Benadryl[®])
Dopamine
Epinephrine
Etomidate (Amidate[®]).....80 mg per bag maximum
Fentanyl (Sublimaze[®])
Furosemide (Lasix[®])
Glucagon
Haloperidol (Haldol[®])
Hydroxocobalamin* (Cyanokit[®])
Ipratropium (Atrovent[®])
Levalbuterol (Xopenex[®])..... may be substituted for albuterol (1 unit dose for 1)
Lidocaine (Xylocaine[®])
Magnesium Sulfate
Maalox
Methylprednisolone (Solu-Medrol[®])
Midazolam (Versed[®])20 mg per bag maximum
Morphine.....may be substituted for Fentanyl[®] (1 mg = 10 mcg)
Naloxone (Narcan[®])
Nitroglycerine
Ondasteron (Zofran[®])
Oxygen
Prednisolone (Prednisone[®])

MEDICATION LIST (cont.)

Pralidoxamine*

Sodium bicarbonate

Sodium nitrite*

Sodium thiosulfate*

Succinylcholine (OEMS approved DFI agencies)

Vaccine and Immunization agents (authorized by the Director of Public Health, State EMS Director and State EMS Medical Director as stated in Paramedic Scope of Practice) _____

Vecuronium (OEMS approved agencies)

**Toxmedic protocols*

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